

b/

The dielectric ring 50 projects downward by a distance "a" from the lower face of the cathode 38. This part of the dielectric ring 50 extending below the lower face of the cathode 38 is referred to as the projecting part of the dielectric ring 50. The hollow circular plate-shaped metal ring 52 is mounted on the lower face of this projecting part. The metal ring 52 is 3 mm thick, although other thicknesses may be used. The metal ring 52 is arranged parallel with the surface of the target 48. The distance between the upper face of the metal ring 52 and the lower face of the cathode 38 is the same as "a". The inner circumferential edge 64 of the metal ring 52 projects inward by a distance "b" from the inner circumferential face 62 of the dielectric ring 50. Because the metal ring 52 projects inward from the dielectric ring 50 in this way, it becomes difficult for film to be deposited on the inner circumferential face 62 of the dielectric ring 50. The inner circumferential edge 64 of the metal ring 52 is spaced apart from the outer circumferential face of the target 48 by a distance "c". The outer circumferential edge of the metal ring 52 is in contact with the inner face of the side wall of the processing chamber 34. In this embodiment, $a = 2.5$ mm, $b = 3$ mm and $c = 2.5$ mm, although other distances may also be used. Therefore, the gap between the metal ring 52 and the cathode 38 (distance a) is 2.5 mm and the gap between the metal ring 52 and the target 48 is 2.5 mm (distance c). In addition, the depth of the gap, which is the shortest path extending from the entrance of the gap to the inner circumferential face 62, is the sum total of the thickness of the metal ring 52 (3 mm) and the length by which the metal ring projects ($b = 3$ mm), and is approximately 6 mm. In this way, because the width of the gap is 3 mm, or less, and the depth of the gap is 3 mm, or more, plasma does not enter the gap. Consequently, film is